

Division of Geriatrics and Clinical Gerontology (DGCG)

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The official link for this solicitation is: <http://grants.nih.gov/grants/guide/pa-files/PA-12-088.html>

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Department of Health and Human Services

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Topic Number:

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Description:

DGCG supports clinical and translational research on health and disease in the aged and research on aging over the human life span and its relationships to health outcomes. Translational research is of interest for developing and testing the effectiveness of interventions known to be efficacious for everyday clinical practice and health decision making. Research on Geriatrics focuses primarily on health issues regarding the aged, and deals with research on disease and disability in older persons, including both specific conditions and issues related to multiple morbidity. Clinical Gerontology Research focuses primarily on clinically related issues regarding aging, and deals with research on aging changes over the life span. A major focus is on the determinants of rates of progression of age-related changes that affect disease risk, particularly those affecting risk for multiple age-related conditions.

Areas of interest include but are not limited to:

- A. Development of vaccines and other agents for preventing and treating infections in older persons, including development of new vaccines or preventive interventions, and new methods using currently available vaccines or preventive medications.
- B. Development of clinical decision support tools that helps physicians caring for patients with multiple chronic conditions to prioritize the interventions that are most beneficial and relevant within the context of these patients' lives.

C. Devices and/or techniques for preventing or treating urinary incontinence.

D. Development of improved post-surgical treatments/technologies promoting wound healing and reduced scar formation.

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E. Refinements in techniques for the measurement of age-related changes in hormone levels, status or pharmacokinetics (e.g., those of growth hormone, IGF-1 and its binding proteins; estrogen, progesterone, testosterone; other markers of ovarian, testicular, hypothalamic and pituitary function). The objective is to enhance sensitivity and achieve greater economy in the assay cost.

F. Effects of menopause on woman's aging and subsequent health. Effects of age-related changes in endocrine status in men on subsequent aging, morbidity and mortality.

1. Refinements in techniques for the measurement of age-related changes in hormone levels or pharmacokinetics (e.g., those of growth hormone, IGF-1 and its binding proteins; estrogen, progesterone, testosterone; other markers of ovarian, testicular, hypothalamic and pituitary function).

2. Development and testing of alternative strategies (to conventional estrogen/ progestin therapy) for the management of short-term menopausal symptoms and for the reduction in risks of cardiovascular disease, osteoporosis, and other menopause-related conditions, disorders and diseases. Development and testing of new tissue-specific modulators of estrogen/ androgen receptor activity in men and in women for the prevention or treatment of age-related diseases.

3. Development, testing and validation of new surrogate measures of clinically relevant outcomes and endpoints (e.g., fractures) for (1) more immediate and accurate assessment of the risk or progression of age-related diseases (e.g., osteoporosis) or (2) to predict or monitor efficacy of treatment or enhanced risk or progression of adverse effects/events.

4. Determine drug interactions, i.e., potential alterations in pharmacokinetics and pharmacodynamic properties of drugs taken concomitantly with postmenopausal hormones.

G. Osteoporosis. Development, testing, and validation of new surrogate measures of clinically relevant outcomes and endpoints (e.g., fractures) for (1) more immediate and accurate assessment of the risk or progression of age-related diseases (e.g., osteoporosis) or (2) to predict or monitor efficacy, response to treatment or enhanced risk or progression of adverse effects/events.

Development and validation of non-invasive methods of examining bone quality (density, architecture, and strength of bone).

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H. Improved instrumentation and imaging techniques for measuring body composition and properties such as muscle function in older persons.

I. Development of techniques/devices (e.g., non-invasive, portable) for improved monitoring of caloric intake and/or energy expenditure in epidemiological studies.

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J. Measuring ambulation and assessing factors contributing to problems in and/or related to ambulation and mobility in general

1. Development of improved instrumentation for biomechanical assessment of ambulation and falls.
2. Development of improved instrumentation to assess balance, sway, gait, and postural control to identify stable and unstable patterns of movement during activities of daily living
3. Development of improved quantitative methods of assessing postural perturbations relevant to activities of daily living.

K. Development of improved, lightweight, and absorbent materials or other interventions to prevent, protect against and minimize injuries suffered from falls.

L. Development of assistive technologies to enable and support older persons to live independently and safely at home

1. Development of devices/assistive technologies addressing complications of limited mobility among older persons.

M. Development of technologies to assist in the improvement of physical function and mobility in older persons prior to (prehabilitation) or following (rehabilitation) elective/planned surgery.

N. Research on better ways to prevent injuries and deaths associated with the use of currently-available bed rails in populations of older patients. Such research would include work on their identification and testing of improved designs of bed systems for use in homes, skilled nursing facilities, and hospitals.

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O. Development of devices and techniques for screening substantial numbers of individuals for particular alleles at loci of relevance to human genetic studies of aging.

P. Development and validation of imaging and sensor technologies to improve measures of physiologic changes with age.

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Q. Development and validation of improved approaches for evaluation, monitoring or treatment of diastolic dysfunction in older adults.

R. Development and validation of improved techniques for hemodynamic monitoring of older adults in emergency and/or critical care settings.

S. Development and validation of instruments or methods to evaluate fatiguability—the level of fatigue related to the intensity, duration, and/or frequency of activity (in contrast to measures of fatigue), particularly in adults with or at-risk of developing age-related conditions or diseases leading to physical disability.

T. Development and validation of innovative approaches to pain control that consider age-related physiologic changes such as gastrointestinal absorption, cutaneous integrity, and musculoskeletal structure and function.

U. Development and evaluation of treatment approaches to age-related diseases or conditions based on modulation of the thyroid hormone axis.

V. Interventions and methods for screening, diagnosis, and treatment of cancer in older persons.

W. Development of methods to accurately determine the renal glomerular filtration rate (GFR) in older persons and patients with chronic kidney disease. The new methods should justify the effects of age-related changes in muscle mass, levels of serum creatinine, renal blood flow and renal concentrating ability.

X. Identification of novel biomarkers of acute kidney injury and chronic kidney disease in older persons. Such research would include identification of biomarkers and evaluation of their clinical utility for

early diagnosis, prediction of the course of progression of diseases and/or monitoring the effects of treatment.

Y. Development and validation of new technology such as non-invasive methods to examine blood-flow velocity in arteries, individual coronary arteries, renal arteries, and cerebral arteries.

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